

REMARKS

Applicants acknowledge receipt of the Examiner's Office Action dated September 1, 2009.

Claims 56, 58, 60-64, 66, 68-72, 74, 76-80, 82 and 84-88 are pending in the application.

Claims 56, 58, 60-64, 66, 68-72, 74, 76-80, 82 and 84-88 have been rejected.

Rejection of Claims under 35 U.S.C. § 102

Claims 56, 58, 60-64, 66, 68-72, 74, 76-80, 82 and 84-88 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Extending Object-Oriented Systems with Roles*, Georg Gottlob ("Gottlob"). Applicants respectfully traverse this rejection.

Independent claims 56, 64, 72 and 80 each contain limitations of substantially the following form:

the selecting the child class is performed such that each of the one or more associated attributes has a non-null value to describe the item...

associating the item with the child class, wherein

the attribute describes one or more members of the child class,
the one or more associated attributes are necessary to describe the item...

the attribute has a first domain associated with the parent class and a second domain associated with the child class, and
the second domain is more restrictive than the first domain...

storing a first record associating the item, and the child class; and

storing a second record associating the item with the attribute, and a value of the attribute.

See, e.g., Claim 56. Applicants respectfully submit that the sections of *Gottlob* cited by the Office Action fail to provide disclosure of at least these limitations of the independent claims and that, therefore, *Gottlob* cannot anticipate the present invention under 35 U.S.C. §102(b).

As an initial matter, the Office Action does not point to any above-quoted elements of Applicants' claims as being or represented by parts of *Gottlob* at a level of specificity greater than a whole page or whole drawing citation. *See* Office Action, p. 3. Thus, the features of the references the Office Action purports to map to the specific limitations of Applicants' claims cannot be ascertained. Indeed, the particular features of the cited references that are relied upon have not been designated as nearly as practicable, and the pertinence of each reference has not been clearly explained, both as required by 37 C.F.R. § 1.104(c)(2). Applicants respectfully request that the Examiner, should the Examiner persist in the present rejections in a subsequent action, provide such specific designation.

Applicants respectfully submit that the Office Action fails to establish that *Gottlob* provides disclosure of "the selecting the child class is performed such that each of the one or more associated attributes has a non-null value to describe the item," as claimed. The section of *Gottlob* cited by the Office Action provides the following:

In a class hierarchy, every real-world entity is represented as an instance of the most specific class for which it qualifies. An instance stores a value for each instance variable defined in or inherited by its class.

See Gottlob, p. 273, ¶ 2. Thus, *Gottlob* provides that the entity-class relationship is determined by whether the entity "qualifies" for a specific class. The cited section of *Gottlob* provides no indication that "qualifying" means that every attribute for the class (*e.g.*, *Gottlob*'s "instance variables") will have a non-null value, or that the entity-class relationship is determined such that

every instance variable of the class will have a non-null value, as claimed. Instead, *Gottlob* provides that “qualification” is purportedly related to the class descriptor (*e.g.*, person, employee, etc.).

Applicants respectfully submit that *Gottlob* is not concerned with eliminating null values, as provided by the present invention, but is instead concerned with placing the entity in an appropriately described sub-class. For example, *Gottlob* describes tracking an “evolving object” or entity by changing that entity’s sub-class to ensure a proper relationship between the entity and sub-class. *See Gottlob*, pp. 273-74 (“If an entity acquires or abandons a role, it must be reclassified, *e.g.*, promoting Mrs. Smith to a department manager involves” steps for creating an instance in the new class, copying instance variables from the old class, resetting references made to the old class to the new class, and deleting the instance in the old class). Thus, Applicants respectfully submit that *Gottlob*’s entity-class relationship decision is not made with respect to whether each attribute of the associated class is non-null, as claimed, but instead is made with respect to the class descriptor. For example, in Figure 1, the “Student” class includes instance variables: “university,” “major,” “minor,” and “phoneNo.” A person qualifying for the “Student” class may have no minor, and thus those instance variables would be null for an entry for that person in the “Student” class. Rather than being merely undeclared, in some departments, a minor may be unsupported and therefore non-existent (null). This illustrates that *Gottlob* doesn’t contemplate choosing a class for a person such that every attribute (*e.g.*, “instance variables”) has a non-null value, as claimed. For at least these reasons, Applicants respectfully submit that *Gottlob* fails to provide disclosure of the claimed “associating” limitation of the independent claims.

As a result of the above-referenced lack of interest in the existence or elimination of null values, *Gottlob* fails to provide disclosure of the recited “associating the item with the child

class, wherein the attribute describes one or more members of the child class, the one or more associated attributes are necessary to describe the item.” The Office Action cites generally to Figs. 1-3 of *Gottlob* as teaching this limitation. *See* Office Action, p. 3. But Figs. 1-3 are entirely silent as to the necessity of any particular attribute in describing an item. Moreover, the change in attributes associated with the evolution of an individual object described pp. 273-274 of *Gottlob* describes a change in the attributes of the same item, thus indicating that certain of the attributes are not necessary to describe the item itself, but are merely inherited without respect to necessity in the class to which the item is moved. For at least these reasons, Applicants respectfully submit that *Gottlob* fails to provide disclosure of the claimed “attributes are necessary” limitation of the independent claims.

Further, *Gottlob* does not teach that “the attribute has a first domain associated with the parent class and a second domain associated with the child class, and the second domain is more restrictive than the first domain,” as recited. The Application provides that “attributes are defined by a domain which describes a set of values that describes the attribute.” *See*, Application, p. 3, ll. 19-20. The Office Action appears to associate the claimed “the attribute” with *Gottlob*’s “instance variable.” However, the Office Action is silent as to a purported element of disclosure in *Gottlob* corresponding to the claimed “domains.” *See Gottlob*, p. 270, ¶ 1. Figures 2 and 3, which are also cited by the Office Action, purport to show instances of classes in which the instance variables are set. But Applicants respectfully submit that neither the text nor the figures illustrate a domain of possible values that describe an attribute (*e.g.*, *Gottlob*’s “instance variable”). While the figures do illustrate specific instance values, they do not illustrate (a) a set of possible values, or (b) restriction of domain ranges between a first and second domain set as claimed.

Applicants further submit that one would not expect *Gottlob* to provide disclosure of the claimed domains or the behavior of those domains. The portion of *Gottlob*, from which the Office Action cites, purportedly relates to class hierarchies and instance variables of classes and associating entities with an appropriate class, or sub-class, within the hierarchy. The sections are also concerned with purported inheritance of instance variables by the classes and sub-classes of the hierarchy and not with a range of values restricting the instance variables, as provided by the claimed domains of the present invention. Applicants respectfully submit that nothing within the cited sections of *Gottlob* suggests that *Gottlob* even contemplates the need for providing such a restriction as provided by the claimed domains. Further, *Gottlob*'s disclosed finding a most specific class for an object does not provide the restrictions to instance variables associated with domains, it merely associates the specific values associated with the object to the instance variables for that object. *Gottlob* cannot be argued to somehow inherently provide the claimed domains because nothing in *Gottlob* suggests the association of domain value sets between first and second domains in upper and lower level classes, as claimed. Nor does any disclosure in *Gottlob* suggest that such must necessarily result.

Additionally, Applicants independent claims recite limitations related to "storing a first record associating the item, and the child class; and storing a second record associating the item with the attribute, and a value of the attribute." The cited sections of *Gottlob* are at best agnostic to storage relationships, and certainly disclose no structures for supporting storage. *See Gottlob*, p. 273 and Figs. 1-3. Applicants submit that *Gottlob* is merely concerned with disclosure of purported class hierarchies themselves and is not concerned with storing item associations, and therefore cannot provide disclosure of at least the storing limitations. Certainly, the above-mentioned differences between *Gottlob*'s class hierarchy and the recited limitations of Applicants' claims indicate that no storage feature peculiar to Applicants' claims

could somehow be characterized as being inherent in the different class hierarchy of *Gottlob*. Therefore, *Gottlob* does not anticipate structures for storing the associations of the item with a class or attributes of the class, as claimed.

For at least the above reasons, Applicants respectfully submit that *Gottlob* fails to provide disclosure of each and every limitation of independent Claims 56, 64, 72 and 80, and all claims depending therefrom, and that they are in condition for allowance. Applicants therefore respectfully request the Examiner's reconsideration and withdrawal of the rejections as to these claims and an indication of the allowability of same.

Rejection of Claims under 35 U.S.C. § 103

Claims 60-62, 68-70, 76-78 and 84-86 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gottlob* in view of U.S. Patent No. 6,754,666 issued to Brookler ("*Brookler*"). For at least the reason that each of Claims 60-62, 68-70, 76-78 and 84-86 depends from and further patentably distinguishes an allowable base claim, Applicants respectfully traverse this rejection. Applicants therefore respectfully request the Examiner's reconsideration and withdrawal of the rejections as to these claims and an indication of the allowability of same.

CONCLUSION

Applicants submit that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

If any extensions of time under 37 C.F.R. § 1.136(a) are required in order for this submission to be considered timely, Applicant hereby petitions for such extensions. Applicant also hereby authorizes that any fees due for such extensions or any other fee associated with this submission, as specified in 37 C.F.R. § 1.16 or § 1.17, be charged to deposit account 502306.

Respectfully submitted,

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